





David del Val

Software Engineer Mathematician



-  24 September 2000
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-  Ddelval
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Personal Projects

Competitive programming repository with solutions 900+ problems across different online judges, implementations and explanations for many advanced algorithms.

-  [Ddelval/Competitive-programming](#)
-  Nov 2018 to Nov 2022

Adventure game and game engine coded in C++ and OpenGL.

-  [Ddelval/OpenGL-project](#)
-  Jun 2020 to Sep 2020

Desktop application for a linear amplifier coded in Java (Swing and libusb).

-  [Ddelval/Expert1.3k](#)
-  Mar 2020

Work Experience

Work Package Manager

July 23 - Ongoing

GMV Aerospace and Defence

Work Package Manager in AiMSyS, a project that aims to extend the functionality of the operational simulators used in the European Space Operations Center by integrating machine learning models into them and providing them with Digital Twin capabilities.

Software Engineer

Sep 22 - Ongoing

GMV Aerospace and Defence

Software engineer in the Operational Simulators Section. I have worked on the development and maintenance of simulators for Earth Observation satellites, deep space missions and International Space Station components for the European Space Agency (ESA).

Software Developer Trainee

Summer 2022

GMV Aerospace and Defence

Summer internship at GMV working on deploying CD/CI systems. The resulting CD/CI systems provided the development team with a daily summary of the testing status and the software requirements tested successfully.

Education

Master's in Data Science

Sep 23 - Sep 24

Universidad Autónoma de Madrid (UAM)

Grade: 9.56/10

1.5 year academic program completed in one year including subjects such as Advanced Methods in Machine Learning, Reinforcement Learning, Information Retrieval, and Natural Language Processing.

Bachelor of Computer Science

Sep 18 - Jul 23

Universidad Autónoma de Madrid (UAM)

Grade: 9.56/10

Obtained 24 honorable mentions (top 2% of students¹) in subjects such as Fundamentals of Machine Learning, Data Structures and Artificial Intelligence.

Bachelor of Mathematics

Sep 18 - Jul 23

Universidad Autónoma de Madrid (UAM)

Grade: 9.55/10

Obtained 15 honorable mentions (top 2% of students¹) in subjects such as Differential Equations, Discrete Mathematics and Probability.

Achievements and Awards

UAM Young Talent Award, with the best academic record of the Engineering and Architecture branch of knowledge at UAM.

Javier Martínez Award for the best academic record of the joint program of Computer Science and Mathematics at UAM

Excellent academic performance scholarship. Scholarship awarded by the Autonomous Region of Madrid. I have obtained this scholarship four times: 2019-2020, 2020-2021, 2021-2022 and 2022-2023.

Best relative position of UAM in ICPC SWERC. SWERC is the ICPC regional contest where students from the entire southwest of Europe compete. Our placement of 16th out of 107 in 2021 is the best relative result of my university since it entered the contest in 2001.

First position in the Ada Byron programming contest (Madrid) in the freshman category.

Best academic record in my high school (9.83/10).

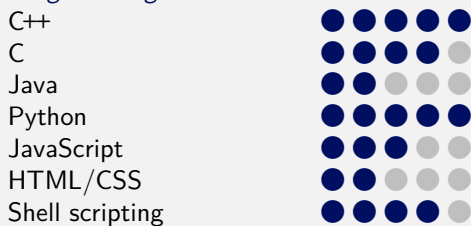
¹ According to <https://www.uam.es/ss/Satellite/EscolaPolitecnica/en/ori/estudiantes-entrantes-incoming-students/generico/detalle/sistema-de-calificaciones-espanol.htm>

David del Val

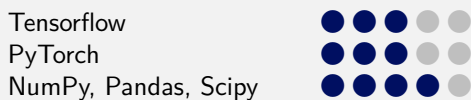
Software Engineer
Mathematician

Skills

Programming



Data Science



Development tools



Certificates

TOEFL iBT

📖 116/120
📅 Sept 2023

Cambridge English Advanced (CAE)

📖 207/210 (Pass at Grade A - C2)
📅 Aug 2018

Publications and dissertations

Infrastructure for running Digital Twins using ESA Ground Segment Systems

👤 D. del Val, M. Prokopczyk, Y. Al-Khazraji, D. Segneri, F. Antonello 📅 Jun 2024
📖 9th European Mission Operation Data System Architecture Workshop at ESA ESOC
🔗 delvaldavid.com/conferences/esaw

AIMSYS: Advancing from simulators to Digital Twins extended with AI

👤 D. del Val, L. García, A. Antúñez, M. Rollán 📅 Jun 2024
📖 V Congreso de Ingeniería Espacial

Relation between PLS and OLS regression in terms of the eigenvalue distribution of the regressor covariance matrix

👤 D. del Val, J.R. Berrendero, A. Suárez 📅 Apr 2024
📖 Submitted to JMVA
🔗 arxiv.org/abs/2312.01379

PLS Regression for Multivariate and Functional Data

👤 David del Val. Advisors: Alberto Suárez, José R. Berrendero 📅 Sep 2024
📖 Master's thesis
🔗 delvaldavid.com/dissertations/msc

Dimensionality Reduction for Functional Regression

👤 David del Val. Advisor: Alberto Suárez 📅 Jun 2023
📖 Undergraduate degree thesis in Computer Science
🔗 delvaldavid.com/dissertations/cs

Partial Least Squares (PLS) for multiple and functional linear regression

👤 David del Val. Advisor: José R. Berrendero 📅 May 2023
📖 Undergraduate thesis in Mathematics
🔗 delvaldavid.com/dissertations/math

Research Experience

Graduate Research Project: Master's Thesis

Jul 23 - Sep 24

Machine Learning Group & Statistics Dept. at UAM

Continuation of my undergraduate research on dimensionality reduction techniques. The focus so far has been on studying the convergence speed of Partial Least Squares regression. Moving forward, the goal is to generalize the obtained results so far to high dimensionality and functional datasets.

Undergraduate Research Project

Jun 22 - Jul 23

Machine Learning Group & Statistics Dept. at UAM

Research on the application of dimensionality reduction techniques to functional data. As part of this research, two degree theses were completed, and numerous contributions were made to the open-source python package `scikit-fda`, maintained by the Machine Learning Group at UAM. Among those, the most significant is the implementation of a Partial Least Squares Regression algorithm capable of accepting multivariate and functional data as regressor or response, and applying regularization to the functional blocks.